REMARKS

Claims 2-4 and 6-18 are all the claims presently pending in the application. Claims 2, 3, and 5-8 have been amended to more particularly define the invention. Claims 9-18 have been added to claim additional features of the invention. Claims 1 and 5 have been un-elected

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 2-4 and 6-8 stand rejected under 35 U.S.C. § 102(a) and/or § 102(e) as being anticipated by HILLHOUSE, et al. (U.S. Patent Application Publication No. US 2002/0154793).

This rejection is respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

The claimed invention, as described by exemplary claim 2, is directed to a fingerprint authentication system including a fingerprint registration data section in which pieces of fingerprint data are registered, a fingerprint read section which reads one fingerprint data, a fingerprint collation section which inspects whether fingerprint data that matches or almost matches to the fingerprint data read by the fingerprint read section is registered in the fingerprint registration data section, a control section which registers the fingerprint data read by the fingerprint read section in the fingerprint registration data section additionally to the fingerprint data that is registered in the fingerprint registration data section and that matches or

almost matches to the fingerprint data read by the fingerprint read section if the fingerprint data that matches or almost matches to the fingerprint data read by the fingerprint read section is registered in the fingerprint registration data section, and deletion sections for <u>deleting</u> the fingerprint data having a <u>general similarity that is highest among</u> the pieces of fingerprint data registered in the fingerprint registration data section, from the fingerprint registration section.

Conventional authentication technique using personal knowledge such as the password is easy to operate, the technique has disadvantages in that the personal knowledge tends to be forgotten and stolen. In order that particularly high authentication accuracy is to be realized, the number of figures should be increases, thereby disadvantageously, considerably <u>deteriorating user-friendliness</u>. (See Application at page 1, lines 15-22).

Also, conventionally, electronic commerce was intended for adults, fingerprint patterns of whom have less change. In contrast, the cellular phones are used even by children. Since children are in a growth process, their fingerprint sizes increase. As a result, <u>it is difficult to collate fingerprint data on each child with fingerprint data previously registered</u>. Further, in an environment in which a finger is worked too hard, a fingerprint of the finger is damaged and a fingerprint surface changes with the passage of time. As a result, <u>there is a case where the fingerprint collation cannot be performed</u>. (See Application at page 3, lines 13-25).

With the claimed invention, whenever authentication succeeds, one of the fingerprint data registered in the fingerprint registration data section is replaced by the fingerprint data input by the fingerprint read section or the fingerprint data input by the fingerprint read section is added to the fingerprint data registered in the fingerprint registration data section. As a result, each time a user uses the system, the fingerprint data registered in the fingerprint registration data section changes. Therefore, <u>it is possible to authenticate even fingerprint data on a child in a growth process without deteriorating authentication accuracy</u>.

In addition, the fingerprint data varies every season according to a roughness, a temperature, a hardness, and the like of a skin. However, by adding the fingerprint data input by the fingerprint read section to the data registered in the fingerprint registration data section as stated above, in order to accumulate fingerprint data on each season, it is possible to match registered fingerprint data during a season when the authentication is performed, to the authentication target fingerprint data, and to stably authenticate the fingerprint data without any influence of a seasonal change in the fingerprint.

Furthermore, according to the conventional fingerprint authentication system, registered fingerprint data having a high similarity to the already registered fingerprint data is discovered so as to improve fingerprint collation performance.

Also, by deleting the fingerprint data having a high general similarity from the fingerprint registration data section, the fingerprint data having low general similarities are left in the fingerprint registration data section. This means that the fingerprint data having low mutual similarities are left in the fingerprint registration data section. Therefore, the fingerprint registration data section stores the fingerprint data various in patterns. Accordingly, the fingerprint of even the same person that changes in a various manner according to growth, seasons, and conditions can be detected with high accuracy. (See Application at page 5, lines 15-28 and page 6, lines 1-18).

II.   THE PRIOR ART REFERENCE

A.   The Rejections Based on Hillhouse

The Examiner alleges that Hillhouse teaches the claimed invention of claims 2-4 and 6-8. Applicant submits, however, that there are elements of the claimed invention which are neither taught nor suggested by Hillhouse.

Claim 2 recites, *"Deletion means for deleting the fingerprint data having <u>a general</u>
<u>similarity that is highest among the pieces of fingerprint data</u> registered in the fingerprint
registration data section, from the fingerprint registration section."*

In contrast, Hillhouse teaches an authentication server database system, wherein <u>three</u>
<u>classes</u> of biometric template enrollments are stored in the authentication server database: a
master enrollments, historical enrollments, and adaptive enrollments. (Paragraph 65). The
master enrollments are generated from a statically enrolled biometric information source,...,
and are updated during a static enrollment process. Also, the historical enrollments are
updated in a circular fashion by <u>replacing an oldest historical enrollment with a new historical</u>
<u>enrollment</u>. Hillhouse also teaches that <u>three adaptive enrollments, composed of the three</u>
<u>historical enrollments with the highest composite comparison metric</u>, are stored in each
biometric. The adaptive enrollments are <u>updated</u> each time a new historical enrollment is
stored. (Paragraph 65). Hillhouse further teaches that these enrollments are <u>copied and</u>
<u>restored</u> in order to <u>optimize their retrieval and comparison</u> during the authentication process.
(Paragraph 71). However, Hillhouse does not teach or suggest, *"Deletion means <u>for deleting</u>
<u>the fingerprint data having a general similarity</u> that is highest among the pieces of fingerprint
data registered in the fingerprint registration data section, from the fingerprint registration
section."* Instead, from above Hillhouse would suggest to one of ordinary skill in the art that
it is <u>imperative to keep</u> the historical enrollments with the largest composite comparison
metrics (adaptive enrollments) for biometric comparison purposes.

The Examiner alleges that Hillhouse discloses replacing the fingerprint template with
the highest comparison metric. (Office action, page 3, lines 16-20). However, the Examiner
appears to have mixed up the distinction between historical and adaptive enrollments, and
appears to have confused Hillhouse's 1) updating of <u>historical</u> enrollments by <u>deleting the</u>

<u>oldest</u> historical enrollment and 2) updating and storing a set of three <u>adaptive</u> enrollment each time a new historical enrollment is stored with *deleting the fingerprint data having a general similarity that is the highest among the pieces of fingerprint data registered,* when in fact the historical enrollments with the highest comparison metric (i.e. similarity) are kept. (See again, paragraph 71).

Therefore, Applicant submits that there are elements of the claimed invention that are not taught or suggest by Hillhouse.

Claim 6 teaches similar features.

Since Hillhouse fails to teach or suggest all the features recited by the claims, the Examiner is respectfully requested to reconsider and withdraw this rejection.

III.   NEW CLAIMS

New claims 9-18 are added to claim additional features of the invention and to provide more varied protection for the claimed invention. The claims are independently patentable because of the novel and non-obvious features recited therein.

Claims 9-18 are patentable over any combination of the cited references at least based on similar reasons to those set forth above with respect to claims 2 and 6.

IV.   FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 2-4 and 6-18, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

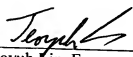Should the Examiner find the application to be other than in condition for allowance,

the Examiner is requested to contact the undersigned at the local telephone number listed

below to discuss any other changes deemed necessary in a <u>telephonic or personal interview</u>.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit

any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: 11/26/07

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